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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/629,213 | 07/31/2000 | Chie-Chi Chen | TS2000-023 | 3986 |

7590

05/24/2002

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EXAMINER

KORNAKOV, MICHAIL

ART UNIT

PAPER NUMBER

1746

DATE MAILED: 05/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/629,213

Applicant(s)

CHEN ET AL.

Examiner

Michael Kornakov

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-17 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group II, claims 11-17 in Paper No. 4 is acknowledged. The traversal is on the ground(s) that the field of search must necessarily cover both the method class and product class and that the fields of search for the Group I and Group II inventions are clearly and necessarily co-extensive. The reasoning provided by the Examiner is treated as "speculative... and insufficient to place the additional cost of a second Patent Application upon the Applicants".

Applicants' traverse is not found persuasive because, first of all, the restriction **has not been made** between the **method** and **product** claims. The restriction was made between Groups of claims related to a **method** (claims 11-17) and **apparatus** (claims 1-10). Therefore, the Applicants' statement that "it is necessary to obtain claims in both the **product** and **method** claim language" is moot.

Secondly, Applicants' attention is drawn to the fact that the search for method claims requires the identification of processing steps, while the search for apparatus claims requires the identification of structural elements. The method and apparatus claims are differently classified, which introduces additional search burden.

Furthermore, Applicants have failed to provide reasoning whether the evidence of separate status, classification and/or search are in error. Therefore the restriction requirement is still deemed proper and therefore made **FINAL**.

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Claims 1-10 withdrawn from further consideration pursuant to 37 CFR 1.142(b),
as being drawn to a non-elected Group.

Claim Objections

2. Claim 17 is objected to because of the following informalities: claim 17 recites "...gas supply is a pressurized and regulated nitrogen gas". Apparently, "gas supply" relates to the structural element of apparatus and "pressurized and regulated nitrogen" describes the nature and state of gaseous agent, which is not a structural element of apparatus. Appropriate correction is required. OK

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 16 recites the limitation "said flexible tube". There is insufficient antecedent basis for this limitation in the claim. OK

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 11-14 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Stadler et al. (U.S. 5,451,267).

Stadler teaches a process for the wet chemical treatment of work pieces, which ensures uniform wet chemical treatment **at every point** on the surface of the workpieces, in particular semiconductor wafers (see Abstract, col. 1, lines 38-42). The process of Stadler comprises immersing supporting frame (compare to carrier means or cassette means, as instantly claimed) with silicon wafers into etchant and gasifying the etchant by feeding a constant stream of nitrogen through a distributor strip and perforated base (paragraph, bridging col.3 and 4). The supporting frame provides free access of the treatment medium to the semiconductor wafers (col.3, lines 12-16). Nitrogen can be provided through the intake side of the centrifugal pump and, thus, pressurized (col.4, lines 11-13). The treatment chamber is filled with treatment medium to such an extent that the semiconductor wafers can be completely immersed in it (col.3, lines 16-19; Fig 1a-b).

Regarding specific limitation of claims 11, 12 and 14, which is concerned with “a gas supply means connected to... gas distribution plate” and specific limitation of claim 16, which is concerned with “flexible tube”, it is noted here that the claimed invention calls for the **process** claims, wherein the steps of the process are met by the applied prior art, and the structural limitations of apparatus do not present manipulative difference between the claimed process steps and the prior art process. Therefore, the recitation of specific structural limitations of apparatus for performing such steps does

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not serve to limit the claim. See, e.g., *In re Otto*, 312 F.2d 937, 938, 136 USPQ 458, 459 (CCPA 1963).

Therefore, all the limitations of instant claims either explicitly or inherently met by Stadler.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stadler et al. (U.S. 5,451,267).

While teaching a process for the wet chemical treatment of work pieces and particularly semiconductor substrates (wafers) with the processing steps, which are identical to the instantly claimed, Stadler does not specifically indicate that distributor strip and some other parts of his Apparatus are made of a corrosion resistant material. However, Stadler indicates that his etching solution may comprise corrosive agents, such as nitric acid, hydrogen fluoride, etc., thus motivating the skilled artisan to utilize corrosion resistant materials for structural elements, which may be in contact with corrosive agents. Therefore, one skilled in the art would have found it obvious to practice the teaching of Stadler in the apparatus wherein the distributor strip and the other structural elements, which may be in contact with corrosive media are made of a corrosion resistant material in order to avoid contamination of etchant and provide safety precautions.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Vetter et al. (U.S. 5,069,235) teaches apparatus and method for cleaning wafers by their complete submerging into the cleaning liquid and providing nitrogen flow through the system. Aigo (U.S. 5,014,727) discloses bubbling device for

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washing semiconductor materials. Calio et al. (U.S. 5,014,727) teaches method for agitating etchant with nitrogen gas.

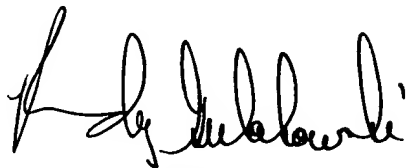
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Kornakov whose telephone number is (703) 305-0400. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (703) 308-4333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872 9310 for regular communications and (703) 872 9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 2450.

Michael Kornakov
Examiner
Art Unit 1746

mk
May 17, 2002



RANDY GULAKOWSKI
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